ROBLES PARK WATER QUALITY IMPROVEMENT

STEPHANIE POWERS

APRIL 2016

2013 TAMPA BAY ENVIRONMENTAL RESTORATION FUND

FINAL PROJECT REPORT

TBEP TECHNICAL REPORT #06-16

FUNDING CONTRIBUTIONS FROM:
Robles Park Water Quality Improvement Project W235

1 INTRODUCTION

This report fulfills the Tampa Bay Estuary Program grant requirement that the District provide a final project report for the Robles Park Water Quality Improvement Project. The water quality project was jointly funded by Tampa Bay Environmental Fund, City of Tampa, Florida Department of Transportation and Southwest Florida Water Management District. The benefits of the project include water quality improvements as a result of reduced sedimentation, increased residence time, and biological treatment of stormwater prior to its discharge into the Hillsborough River and ultimately Tampa Bay.

The project is located at Robles Park in City of Tampa and at the Lake discharge canal south of the intersection of Glenwood Avenue and Ross Street on the Hillsborough River. Refer to Figure 1 for a site location map of the project areas. The grant funding applied to retrofit of stormwater facilities directing untreated stormwater from a 170-acre urban basin to the Robles Park Lake. Construction activities included installation of five baffle boxes upstream of Robles Park Lake, dredging Robles Park Lake to remove stormwater sediments and to increase pond volume, and installation of littoral shelves. Additionally, the project consisted of stabilizing the discharge channel banks, removing non-native vegetation and planting upland and wetland plants in the City Right of Way along the channel to its confluence with Hillsborough River.

Figure 1: Site Location Map
2 PROJECT CONSTRUCTION

The District advertised the Project in May 2014 with bids due July 2, 2014. Three bids were received and on August 1, 2014, the District issued a Notice of Intent to Award the Project to ProLime Corporation for $2,145,955.40. A notice to proceed was issued with an effective construction date of October 10, 2014. ProLime began hydraulic dredge mobilization in November 2014. The first six months of construction were focused mainly on dredging Robles Park Lake. Refer to Section 4 for quarterly reports detailing the schedule.

Dredging began in December 2014 and continued through November 20, 2015. Survey was conducted to provide as-built drawings November 19th and November 20th, 2015. Preliminary survey data was provided December 1 and the District directed the Contractor to clean up organics to reach the dredge template specifications. The Contractor dredged until February 24, 2016 and removed the dredge from the site February 25, 2016. Clean-up efforts and dredge sediment disposal was completed by April 14, 2016.


Baffle box installations occurred between June 18, 2015 and October 30, 2015. Table 1 represents the actual installation schedule for the five boxes. Details regarding each baffle box are provided in the following paragraphs.

Table 1: Baffle Box Installation Schedule

<table>
<thead>
<tr>
<th>Baffle Box Structure Name/Location</th>
<th>Installation Commenced</th>
<th>Installation Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-1 /Emily Street</td>
<td>June 18, 2015</td>
<td>June 31, 2015</td>
</tr>
<tr>
<td>S-8 /Adalee and Central</td>
<td>September 23, 2015</td>
<td>October 30, 2015</td>
</tr>
<tr>
<td>S-9 /South Elmore Ave.</td>
<td>August 26, 2015</td>
<td>August 28, 2015</td>
</tr>
</tbody>
</table>

The first baffle box installed was S-1 located on Emily Street near the intersection with Central Avenue. S-1 installation began June 18, 2015 with it substantially complete and operating June 22, 2015. The final equipment was installed by the manufacturer, SunTree, July 31, 2015.

The second Baffle Box, S-13 was delivered on site Friday June 26, 2015. Rain delayed installation commencement until July 3, 2015. This baffle box included connections to two additional structures and heavy rain in July delayed final installation of all associated structures until July 16, 2015. Once S-13 was completed, the Contractor began construction and installation of S-9.

Prior to installation of S-9, overhead utilities were moved delaying baffle box installation commencement to August 26, 2015. S-9 was completed, including internal equipment installation August 28, 2015. A gas line conflict delayed installation of the fourth baffle box, S-3. After almost three weeks delay, the utility located the gas line and determined its depth and trench excavation began September 15, 2015. This baffle box was completed by SunTree on September 23, 2015.
The final baffle box, S-8, was delivered to the site September 23, 2015 and installation was completed October 30, 2015.

The Contractor installed three baffle box driveways needed to provide City of Tampa Maintenance Department vacuum trucks access to clean the baffle boxes. The final grading and sodding for S-1, S-13, S-9 and S-3 was completed December 10, 2015. Sod at the final baffle box occurred March 24, 2016. The final driveway was delayed to accommodate a change order that provided concrete encasement of a water main uncovered during baffle box installation. The Robles Park Restoration was scheduled to be completed in December 2015 but the additional change order work extended the end date to March 28, 2016.

Once all construction and planting is completed, the contractor is responsible for maintenance of the plantings for one year or four quarters. Maintenance consists of control of exotic vegetation to provide time for marsh and wetland plants to become established.

### 3 Measurable Benefit

The measurable benefit for this grant is installation of two or more baffle boxes to treat a minimum of 36 acres of watershed draining to Robles Park Lake. Bids came in low enough that all five baffle boxes were installed at the project site. Table 1 depicts the locations and drainage area treated by each nutrient separating baffle box.

Table 1: Measurable Benefit for Nutrient Separating Baffle Boxes

<table>
<thead>
<tr>
<th>Baffle Box Structure</th>
<th>Name</th>
<th>Robles Park Location</th>
<th>Drainage Area (acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-1</td>
<td>Emily Street</td>
<td></td>
<td>14.65</td>
</tr>
<tr>
<td>S-3</td>
<td>Elmore and Adalee</td>
<td></td>
<td>21.74</td>
</tr>
<tr>
<td>S-8</td>
<td>Adalee and Central</td>
<td></td>
<td>25.57</td>
</tr>
<tr>
<td>S-9</td>
<td>South on Elmore Ave.</td>
<td></td>
<td>28.78</td>
</tr>
<tr>
<td>S-13</td>
<td>North on Elmore Ave.</td>
<td></td>
<td>32.18</td>
</tr>
<tr>
<td></td>
<td>Total Drainage Area Treated</td>
<td></td>
<td>122.92</td>
</tr>
</tbody>
</table>

It is estimated that installation of all five boxes and the littoral shelves should improve water quality by reducing loadings to Tampa Bay by; 143 pounds/year of Total Nitrogen, 84 pounds/year of Total Phosphorus and 43,715 pounds/year of Total Suspended Solids.
Robles Park Littoral Shelf Soft Rush

City Vacuum Truck Cleaning S-1

View of S-1 Basket in Baffle Box Before Cleaning

View of S-1 Basket in Baffle Box After Cleaning

S-3 Baffle Box Basket Before Cleaning

S-3 Baffle Box Basket After Cleaning
S-13 Baffle Box Cleaning

S-13 Baffle Box After Cleaning

North End of Glenwood Stabilized Shore

Glenwood Marsh and Stabilized Shore April 2016
5 QUARTERLY REPORTS

<table>
<thead>
<tr>
<th>Project Name:</th>
<th>Robles Park Water Quality and Natural Systems Restoration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Manager:</td>
<td>SWFWMD</td>
</tr>
<tr>
<td>Project Owners:</td>
<td>City of Tampa, FDOT</td>
</tr>
<tr>
<td>District Project No.:</td>
<td>W235</td>
</tr>
<tr>
<td>Agreement No.:</td>
<td>14CC0000004</td>
</tr>
<tr>
<td>FDOT FPID:</td>
<td>40774717202</td>
</tr>
<tr>
<td>Bid No.:</td>
<td>1401</td>
</tr>
<tr>
<td>Notice to Proceed:</td>
<td>October 10, 2014</td>
</tr>
<tr>
<td>ProLime Contract Expires:</td>
<td>December 31, 2017</td>
</tr>
<tr>
<td>Regulatory Agency Project No.:</td>
<td>USACE SAJ-2013-02148 NWP27 issued- 3/20/14</td>
</tr>
<tr>
<td></td>
<td>HCEPC Combined Minor Work Permit #55874 and Misc. Activities in Wetlands Authorization No.55873 issued - 12/19/13</td>
</tr>
<tr>
<td></td>
<td>FDEP 29-0320242-001Notice General issued-8/15/13</td>
</tr>
</tbody>
</table>

The following quarterly reports provide a construction details regarding budget, milestones, and any problems or delays encountered as the project unfolded. Photographs of the work completed during each quarter is provided as well.

QUARTERLY REPORT #1
October 10, 2014 to December 31, 2014

- Project Milestones:
  - The Robles Park Water Quality and Natural Systems Restoration construction notice to proceed was issued October 10, 2014 with ProLime, Inc.
  - The Contractor began mobilization of the Hydraulic Dredge week of November 15, 2014 and continued with dewatering plant mobilization week of November 29, 2014.
  - Project Sign erected week of December 5, 2014.

- Project Budget:
  - Invoice 1 Pay Request, December 18, 2014 = $90,195.00
  - Quarter 1 Balance Remaining $2,205,760.40

- Problems/Delays Encountered
  Due to rain, the Contractor was delayed in setting up the dewatering plant and unexpected lake pump-down delayed dredge shake-down.

- Photographs from the First Quarter of Construction Follow
Photographs from the First Quarter of Construction:

- Project Sign Robles Park
- Dewatering Equipment Assembly
- Hydraulic Dredge In Robles Park Lake
- Sediment Pile from Hydraulic Dredge Beginning
QUARTERLY REPORT #2
January 1, 2015 to March 31, 2015

- Project Milestones:
  - Contractor continues to dredge Robles Park Lake
  - Contractor proposed to use different baffle box manufacturer January 23, 2015.
  - Contractor submittal for Contech baffle boxes February 1, 2015.
  - Contractor begins mobilizing at the Glenwood Outfall March 19, 2015.
  - Baffle Box Shop Drawings Reviewed March 6, 2015

- Project Budget:
  - Invoice 2 Pay Request through January 2015 = $29,830.00
  - Invoice 3 Pay Request through February 28, 2015 = $61,680.00
  - Invoice 4 Pay Request through March 31, 2015 = $159,596.25
  - Quarter 2 Balance Remaining $1,954,654.15

- Problems/Delays Encountered
  - The Contractor must have approved shop drawing submittals before ordering and installing the 5 baffle boxes. Submittal and approval is delayed while the Contractor seeks alternate product. Baffle boxes ordered in late March and the manufacturer will be unable to deliver the first box for at least one month.

- Photographs from the Second Quarter of Construction Follows
Photographs from the Second Quarter of Construction:

<table>
<thead>
<tr>
<th>Dredge Pile and Scalp Screen Pile 1/7/15</th>
<th>Dredge Pile 2/3/15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robles Park Sediment Pile 2/27/15</td>
<td>Robles Park Scalping Screen for Dredge Dewatering 2/20/15</td>
</tr>
</tbody>
</table>
QUARTERLY REPORT #3
April 1, 2015 to June 30, 2015

• Project Milestones:
  o Contractor continues to dredge Robles Park Lake.
  o Contractor uses Florida Natives Nursery for Glenwood outfall canal bank stabilization March 2015.
  o Glenwood clearing complete and bank stabilization begins April 9, 2015.
  o Contractor completes dredging south end Robles Park Lake April 10, 2015.
  o Contractor negotiating with SunTree to supply baffle boxes April 28, 2015
  o Planting at Glenwood Outfall complete except for sod May 5, 2015.
  o Contractor begins hauling dredge sediments from Robles Park May 6, 2015 and loads out all stored material by May 15, 2015.
  o Contractor begins fencing at Baffle Box sites S-9 and S-13 June 3, 2015.
  o Baffle Box replacement pipe arrives June 11, 2015.
  o Structure S-1 Baffle Box delivered to site June 17, 2015 and installed June 18, 2015 with SunTree finishing with the inside equipment June 22, 2015.
  o Contractor begins mobilizing for Structure S-13 Baffle Box June 24, 2015.

• Project Budget:
  o Invoice 5 Pay Request through April 30, 2015 = $401,601.75
  o Invoice 6 Pay Request through May 31, 2015 = $154,077.50
  o Invoice 7 Pay Request through June 30, 2015 = $280,113.75
  o Quarter 3 Balance Remaining $1,118,861.15

• Problems/Delays Encountered
  Baffle Boxes were delayed being delivered to the site due to Contractor negotiating their agreement with SunTree and time required to deliver boxes to the site. Additionally, rain caused scheduling baffle box installation delays.

• Photographs from the Third Quarter of Construction follow.
Photographs from the Third Quarter of Construction:

<table>
<thead>
<tr>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glenwood bank restoration</td>
<td>4/16/15</td>
</tr>
<tr>
<td>Glenwood Palm Delivery</td>
<td>4/21/15</td>
</tr>
<tr>
<td>Brick Street Removal for S-13 Baffle Box</td>
<td>6/9/15</td>
</tr>
<tr>
<td>Sediment Pile</td>
<td>6/11/15</td>
</tr>
<tr>
<td>Robles Park S-1 Baffle Box Delivery</td>
<td>6/18/15</td>
</tr>
<tr>
<td>Robles S-1 Baffle Box Guiding basket</td>
<td>6/19/15</td>
</tr>
</tbody>
</table>
QUARTERLY REPORT #4
July 1, 2015 to September 30, 2015

- Project Milestones:
  - Contractor continues to dredge Robles Park Lake.
  - Contractor received S-13 bottom and middle June 26, 2015.
  - Contractor received S-9 bottom, middle and lid but no risers June 30, 2015
  - Contractor begins S-13 Baffle Box (second box) installation July 1, 2015 and finishes box July 2, 2015.
  - Contractor sets S-14, upstream manhole from S-13 July 3, 2015 and set connecting pipe.
  - SunTree completed S-13 inner piping and basket July 6, 2015 and July 7, 2015.
  - Contractor sets S-15, final structure upstream of S-13 July 15, 2015 and completed connections July 17, 2015. The second baffle box is operational.
  - Contractor received S-3 baffle box July 23, 2015.
  - 90-Day Warranty inspection for plants at Glenwood outfall July 29, 2015 and maintenance treatment applied August 13, 2015 prior to determining plant replacement requirements.
  - S-1 Baffle Box outlet filter sock system was installed July 31, 2015 completing the first baffle box.
  - S-9 Baffle Box (3rd of 5 boxes) installation begins August 26, 2015 and is completed August 28, 2015.
  - S-3 Baffle Box (4th of 5 boxes) installation begins September 15, 2015 and is completed September 23, 2015.

- Project Budget:
  - Invoice 8 Pay Request through July 30, 2015 = $175,115.50
  - Invoice 9 Pay Request for 5% Retainage = $44,849.03
  - Invoice 9 Pay Request through August 30, 2015 = $187,171.00
  - Invoice 10 Pay Request through September 30, 2015 = $174,638.50
  - Quarter 4 Balance Remaining $581,936.15

- Problems/Delays Encountered
  - Baffle Box installations were hampered by delivery delays, unforeseen site conditions at S-13 and rain.

- Photographs from the Fourth Quarter of Construction follow.
Photographs from the Fourth Quarter of Construction:

<table>
<thead>
<tr>
<th>Second Baffle Box (S-13) Delivered 6/25/15</th>
<th>Third Baffle Box (S-9) Delivered 6/30/15</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Image" /></td>
<td><img src="image2" alt="Image" /></td>
</tr>
<tr>
<td>Trench open for S-13 Baffle Box 7/1/15</td>
<td>Setting base of S-13 Baffle Box 7/1/15</td>
</tr>
<tr>
<td><img src="image3" alt="Image" /></td>
<td><img src="image4" alt="Image" /></td>
</tr>
<tr>
<td>SunTree Installs S-13 Baffle Box Equip. 7/7/15</td>
<td>S-15 Inlet Curb Set to Connect to S-13 Baffle Box 7/15/15</td>
</tr>
<tr>
<td><img src="image5" alt="Image" /></td>
<td><img src="image6" alt="Image" /></td>
</tr>
</tbody>
</table>
QUARTERLY REPORT #5
October 1, 2015 to December 31, 2015

- Project Milestones:
  - Contractor completes dredging November 20, 2015 at Robles Park Lake.
  - Contractor grades and fills along Robles Park Lake Shoreline.
  - Contractor completes brick restoration on Elmore Avenue.
  - Contractor completes sod and site restoration at Glenwood Avenue.

- Project Budget:
  - Awaiting final invoice.

- Problems/Delays Encountered
  - Change Order to install an additional curb inlet at S-8 (Central and Adalee) and add slope reinforcement material along southeast shoreline to address erosion will add time to the construction completion date.

- Photographs from the Fifth Quarter of Construction follow.
Photographs from the Fifth Quarter of Construction:

Robles Sediment Pile 11/11/15

Robles Park Existing 36” Pipe at SE Lake edge.

S-3 Driveway Forms for Concrete 9/30/15

S-3 Driveway Poured 10/1/15

Existing 24” Endwall Robles Lake South 10/6/15

New 24” Endwall Installation 10/8/15
<table>
<thead>
<tr>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glenwood Upland Planting</td>
<td>10/12/15</td>
</tr>
<tr>
<td>Glenwood Marsh at High Tide</td>
<td>10/12/15</td>
</tr>
<tr>
<td>Robles Park Fifth Baffle Box Installed</td>
<td>11/4/15</td>
</tr>
<tr>
<td>Robles Park 36” Endwall Installed</td>
<td>11-6-15</td>
</tr>
</tbody>
</table>
QUARTERLY REPORT #6 FINAL
January 1, 2016 to April 20, 2016

- Project Milestones:
  - Contractor completes touch-up Robles Park dredging February 2016.
  - Contractor grades and fills along Robles Park Lake Shoreline April 2016.
  - Contractor completes sod and site restoration at Robles April 2016.
  - Contractor adds a new curb inlet at Adalee and Central to capture more runoff for treatment.
  - Contractor cleans all baffle boxes and releases maintenance to City of Tampa April 18, 2016.

- Project Budget:
  - Awaiting final invoice.

- Problems/Delays Encountered
  - Inclement weather delayed completion of Change Order activities and removal of final sediment on site.